

REMARKS

Claims 1-21 are presently pending in this application. Claims 4 and 15 have been amended in this response. More specifically, claims 4 and 15 have been rewritten in independent form without narrowing the scope of these claims.

In the Office Action mailed July 24, 2006, claims 1-21 were rejected. More specifically, the status of the claims in light of this Office Action is as follows:

(A) Claims 1-3, 8-15 and 19 were rejected under 35 U.S.C. § 103(a) over the combination of (a) U.S. Patent No. 6,624,879 to Imai ("Imai"), and (b) either U.S. Patent No. 6,817,057 to Shirley et al. ("Shirley") or Japan Patent No. 10-294261 to Akune ("Akune"); and

(B) Claims 5, 6, 16, 17, 20 and 21 were rejected under 35 U.S.C. § 103(a) over the combination of (a) Imai, (b) either Shirley or Akune, and (c) U.S. Patent No. 6,290,863 to Morgan ("Morgan") or U.S. Patent No. 6,666,927 to Gindel ("Gindel") or Japan Patent No. 5-291400 to Hitachi ("Hitachi").

A. Response to the Section 103(a) Rejection of Claims 1-3, 8-15 and 19

Claims 1-3, 8-15 and 19 were rejected under 35 U.S.C. § 103(a) over the combination of Imai and either Shirley or Akune. Shirley and the claimed invention were, at the time the invention was made, subject to an obligation of assignment to Micron Technology, Inc. As such, Shirley cannot be used as a reference to support a Section 103(a) rejection of the claimed invention. The applicant accordingly requests withdrawal of the rejection based on Imai and Shirley. Moreover, as set forth in detail below, the combination of Imai and Akune fails to disclose or suggest all of the features of the claims.

1. Claim 1 is Directed to a Stepper or Scanner Machine Including, *inter alia*, a Cleaning Device Disposed Within a Housing

Claim 1 is directed to a stepper or scanner machine for processing microfeature workpieces. The machine includes a housing, an illuminator disposed within the housing, a lens disposed within the housing, a workpiece support disposed within the housing, a cleaning device disposed within the housing, and a stage carrying the workpiece support. The cleaning device is

configured to remove contaminants from the workpiece support. The stage and/or the cleaning device is movable relative to the other to selectively position the workpiece support at least proximate to the cleaning device.

2. Imai Discloses an Exposure Apparatus for Detecting Foreign Matter Located on the Bottom of a Wafer

Imai discloses an exposure apparatus for detecting foreign matter beneath a wafer. The apparatus includes a projection optical system that transfers an image of a reticle pattern onto a first shot area of a wafer coincident with an image plane. The process is repeated and defocus amounts for the differing shot areas are measured and stored. Based on the defocus amounts the apparatus detects the presence of foreign matter at the bottom of the wafer. If foreign matter is detected, an operator may initiate "a suitable sequence of operations such as one for cleaning the wafer holder" to remove the foreign matter. (Imai 14:3-4.) Notably, Imai does not disclose a cleaning device disposed within the housing.

3. Akune Discloses a Resist Applying Device Having A Cleaning Device Including a Cleaning Head with a Jet Port for Jetting Acetone and N2 Gas onto a Spin Chuck

Akune discloses a resist applying device having a cleaning device and a spin chuck 11. The cleaning device includes a cleaning head 51 having a brush 51a and a jet port for jetting acetone and N2 gas onto the spin chuck 11 for cleaning. A driving part 53 and cleaning arm 52 move the cleaning head 51 relative to the spin chuck 11.

4. The Combination of Imai and Akune Fails to Disclose or Suggest a Stepper or Scanner Machine Including, *inter alia*, a Cleaning Device Disposed Within a Housing

The combination of Imai and Akune fails to disclose or suggest a stepper or scanner machine, including, *inter alia*, "a cleaning device disposed within the housing," as recited in claim 1. In the Office Action, the Examiner alleged that Imai discloses "a cleaning device disposed within the housing." (Office Action, p. 2.) This assertion is incorrect. Imai does not disclose a particular cleaning device, but rather discloses "initiating a suitable sequence of operations such as one for cleaning the wafer holder...." (Imai 14:3-4.) Imai does not mention whether the cleaning operation includes a cleaning device or an operator manually cleaning the

apparatus. Even assuming for the sake of argument that Imai's cleaning operation involves a cleaning device, Imai fails to disclose a cleaning device disposed within a housing. Akune also appears to fail to disclose a cleaning device disposed within a housing. Although Akune discloses a cleaning device, Akune does not mention a housing. Therefore, the combination of Imai and Akune fails to disclose all of the features of claim 1.

Claim 1 is further patentable because a person skilled in the art would not include Akune's cleaning device for a resist tool inside Imai's apparatus for photolithography. Akune teaches a cleaning device for use in a spin-on resist tool for "jetting acetone and N₂ gas." (Akune, Abstract.) Such a cleaning device is not applicable to photolithography tools because it would likely splatter onto Imai's lens, reticle and/or other delicate photolithographic components. The splattering would likely damage these components or at least distort the precise pattern that is required in Imai's photolithographic device. Because of the potential damage to Imai's apparatus caused by Akune's cleaning device, one skilled in the art would not include Akune's cleaning device inside Imai's apparatus. Accordingly, the Section 103(a) rejection of claim 1 should be withdrawn because (a) the combination of Imai and Akune fails to disclose or suggest all of the features of the claim, and (b) one skilled in the art would not combine Akune with Imai.

Claims 2, 3 and 8-10 depend from independent claim 1. Accordingly, the Section 103(a) rejection of claims 2, 3 and 8-10 should be withdrawn for at least the reasons discussed above with reference to claim 1 and for the additional features of these claims.

Independent claims 11 and 18 have, *inter alia*, features generally analogous to the features of claim 1. Accordingly, the Section 103(a) rejection of claims 11 and 18 should be withdrawn for at least the reasons discussed above with reference to claim 1 and for the additional features of these claims.

Claims 12-14 depend from independent claim 11; and claim 19 depends from independent claim 18. Accordingly, the Section 103(a) rejection of claims 12-14 and 19 should be withdrawn for the reasons discussed above with reference to their respective independent claims and for the additional features of these claims.

5. Claim 4 is Directed to a Stepper or Scanner Machine Including, *inter alia*, a Housing and a Cleaning Device Fixed Relative to the Housing

Claim 4 is directed to a stepper or scanner machine for processing microfeature workpieces. The machine includes a housing, an illuminator disposed within the housing, a lens disposed within the housing, a workpiece support disposed within the housing, a cleaning device disposed within the housing, and a stage carrying the workpiece support. The cleaning device is fixed relative to the housing and removes contaminants from the workpiece support. The stage and/or the cleaning device is movable relative to the other to selectively position the workpiece support at least proximate to the cleaning device.

6. The Combination of Imai and Akune Fails to Disclose or Suggest a Stepper or Scanner Machine Including, *inter alia*, a Housing and a Cleaning Device Disposed Within the Housing and Fixed Relative to the Housing

The combination of Imai and Akune fails to disclose or suggest a stepper or scanner machine including, *inter alia*, "a housing" and "a cleaning device disposed within the housing...wherein the cleaning device is fixed relative to the housing." First, as noted above, the combination of Imai and Akune fails to disclose a cleaning device disposed within a housing of a photolithographic tool, and one skilled in the art would not combine Imai and Akune because of the potential damage to the photolithographic tool. Second, the combination of Imai and Akune also fails to disclose a cleaning device fixed relative to the housing. Imai is silent as to cleaning devices, and Akune discloses a movable cleaning head 51 for aiming the jet of acetone and N₂ gas toward a desired portion of the spin chuck. Akune's cleaning head is moveable so that it can clean the entire spin chuck, and thus one skilled in the art would not modify Akune's cleaning head to prevent it from moving by fixing it to Imai's tool. Therefore, the combination of Imai and Akune fails to disclose or suggest a cleaning device within a housing and fixed relative to the housing. Accordingly, the Section 103(a) rejection of claim 4 should be withdrawn.

Independent claim 15 has, *inter alia*, features generally analogous to the features of claim 4. Accordingly, the Section 103(a) rejection of claim 15 should be withdrawn for the reasons discussed above with reference to claim 4, and for the additional features of this claim.

B. Response to the Section 103(a) Rejection of Claims 5, 6, 16, 17, 20 and 21

Claims 5, 6, 16, 17, 20 and 21 were rejected under 35 U.S.C. § 103(a) over the combination of (a) Imai, (b) either Shirley or Akune, and (c) Morgan, Gindel or Hitachi. Gindel, Morgan and Hitachi fail to cure the above-noted deficiencies of Imai and Akune to properly support a Section 103(a) rejection of claims 5, 6, 16, 17, 20 and 21. For example, Gindel, Morgan and Hitachi fail to provide a reason for placing Akune's cleaning device in Imai's apparatus. Therefore, the Section 103(a) rejection of claims 5, 6, 16, 17, 20 and 21 should be withdrawn.

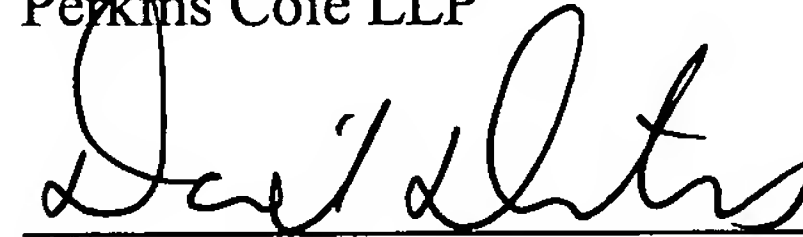
C. Conclusion

In view of the foregoing, the pending claims comply with 35 U.S.C. § 112 and are patentable over the applied art. The applicant accordingly requests reconsideration of the application and a Notice of Allowance. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned representative at (206) 359-6465.

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Respectfully submitted,

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